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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Sheng Liang

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EXAMINER

HOANG, PHUONG N

ART UNIT

PAPER NUMBER

2194

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/668,124	Applicant(s) LIANG ET AL.	
	Examiner PHUONG N. HOANG	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14 - 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14 - 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/24/03, 11/12/04, & 1/23/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 14 – 17 are pending for examination.

Drawings

2. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicants are required to update the status of the Cross-reference application (page 1).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 14 – 17 are directed to non-statutory subject matter.**

6. Claim 14 recites “an architecture” comprising of software only. Software is functional descriptive material and is nonstatutory when claimed as descriptive material per se. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Since claim 31 does not recite the software as being recorded on a computer-readable medium, the apparatus is interpreted as comprising functional descriptive material per se and non statutory. See MPEP § 2106.01.

7. Claim 15 recites “a runtime environment” comprising of software only. Software is functional descriptive material and is nonstatutory when claimed as descriptive material per se. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Since claim 31 does not recite the software as being recorded on a computer-readable medium, the apparatus is interpreted as

comprising functional descriptive material per se and non statutory. See MPEP § 2106.01.

8. Claim 16 recites “a virtual machine implementation” comprising of software only. Software is functional descriptive material and is nonstatutory when claimed as descriptive material per se. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Since claim 31 does not recite the software as being recorded on a computer-readable medium, the apparatus is interpreted as comprising functional descriptive material per se and non statutory. See MPEP § 2106.01.

9. Claim 17 recites “a runtime environment” comprising of software only. see rejection for claim 15 above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson, “DVM: An Object-Oriented Framework for Building Large Distributed Ada System” pages 179 – 191 in view of Moore, US patent no. 6,011,916.

12. As to claim 14, Thompson teaches a modular runtime environment architecture comprising:

a single virtual machine implementation (Distributed virtual machine (DVM), title, abstract, section 1) providing virtual machine functionality;

a plurality of support libraries (libraries units, section 4), wherein a support library includes library functions; a bi-directional virtual machine interface (interface, section 1 – 1.1.3, 2.2.1, 3.6), the interface defining virtual machine implementation-dependent operations performed by the virtual machine implementation;

wherein the virtual machine interface supports communication between a second support library, capable of replacing the subprogram variable (section 4), and virtual machine implementation without modification of the virtual machine interface or the virtual machine implementation (Distributed Virtual Machine (DVM) is Distributed object service which allows application class to be designed with interfaces supports multiple physical distributions by invoked in one process and execute in another node with the

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network without any modification to the core application, 1.1.1 – 1.1.3); replacing subprogram variables (section 4).

Thompson does not explicitly teach the step of replacing subprogram variables would replace the support libraries.

Moore teaches replacing the first support library from the plurality of support libraries (replace lib with path to library on local file system, col. 7 lines 30 – 40).

It would have been obvious to one of ordinary skill at the time the invention was made to combine the teaching of Thompson and Moore's system because Moore's libraries would provide all functions calls to get file names and variables to replace the local or client system that virtual machine is executing on, and Moore's system also teaches portability (col. 6 lines 40 – 50, col. 6 lines 40 – 65).

13. **As to claim 15**, Thompson teaches a runtime environment in which a virtual machine implementation uses a first subprogram implementation wherein the first subprogram implementation can be replaced by a second subprogram implementation (access to subprogram will replace subprogram variables, section 1.1.2, 4) without modifying the virtual mechanism implementation (without any modification, 1.1.2, 1.1.3) and wherein a bi-directional virtual machine interface enables communication between the virtual machine implementation and the first support library and communication between the virtual machine implementation and the second support library (section 1 – 1.1.3, 3.6).

Thompson does not explicitly teach the step of replacing subprogram variables would replace the support libraries.

Moore teaches replacing the first support library from the plurality of support libraries (replace lib with path to library on local file system, col. 7 lines 30 – 40).

It would have been obvious to one of ordinary skill at the time the invention was made to combine the teaching of Thompson and Moore's system because Moore's libraries would provide all functions calls to get file names and variables to replace the local or client system that virtual machine is executing on, and Moore's system also teaches portability (col. 6 lines 40 – 50, col. 6 lines 40 – 65).

14. **As to claim 16**, Thompson teaches a virtual machine implementation suitable for use in a runtime environment, the virtual machine implementation (Distributed virtual machine (DVM), title, abstract, section 1) having a virtual machine interface (interface, section 1, 3.6) defining a number of operations performed by the virtual machine implementation, library functions (library units, section 4) that call virtual machine implementation dependent functions that perform operations that are dependent on the particular virtual machine implementation used to perform the operations; and

whereby the virtual machine interface (interface, section 1 – 1.1.3, 2.2.1, 3.6) defines operations that are virtual machine implementation-dependent, the virtual machine implementation comprising a set of implementation functions (the DVM supports ... functions, section 1) for executing operations defined by the virtual machine interface, and

wherein the virtual machine interface with a first support library (child library units, section 4) and the virtual machine implementation, and the virtual machine implementation is suitable for use in conjunction with a plurality of support libraries that are arranged to conform to the virtual machine interface (child library units will help to implement ... child units, section 4), replacing subprogram variables (section 4).

Thompson does not explicitly teach the step of replacing subprogram variables would replace the support libraries; the runtime environment.

Moore teaches replacing the first support library from the plurality of support libraries (replace lib with path to library on local file system, col. 7 lines 30 – 40); the runtime environment (the runtime environment, col. 6).

It would have been obvious to one of ordinary skill at the time the invention was made to combine the teaching of Thompson and Moore's system because Moore's libraries would provide all functions calls to get file names and variables to replace the local or client system that virtual machine is executing on, and Moore's system also teaches portability (col. 6 lines 40 – 50, col. 6 lines 40 – 65).

15. **As to claim 17**, this is the hardware claim of claim 16. See rejection for claim 16 above.

Conclusion

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16. The prior art made of record but not relied upon request is considered to be pertinent to applicant's disclosure.

Sumsion, US patent no. 6,496,865, demonstrating a method for providing interpreter applications access to server resources in a distributed network.

Leung, "DJM: A Global Distributed Virtual Machine on the Internet", may 1998, ACM, pages 1270 – 1297, demonstrating a method for providing method for exploring a parallelism model on object-oriented system.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONG N. HOANG whose telephone number is (571)272-3763. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng A. An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ph
September 10, 2008

/Meng-Ai An/
Supervisory Patent Examiner, Art
Unit 2195